

## Impact of State Government Revenues on Infrastructural Development in Bauchi State Nigeria

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### Abstract

The study examines the impact made by the efforts of Bauchi State Government in the development of infrastructure represented by the level of capital expenditure incurred through the utilization of the state's revenues. Secondary data was obtained from the government's Annual Financial Statements for the period 2006 to 2018. Ordinary Least Square regression was employed as the technique of analysis. The findings of the study revealed that share of allocation received from the federation account as well as debt both had a positive and significant influence in the provision of infrastructure while internally generated revenue, showed a negative and significant relationship. Other receipts comprising of contributions from Local Governments for the execution of joint projects as well as local and foreign grants and assistance received indicated a positive but insignificant relationship. The study recommends that policy makers should ensure a reasonable allocation of federation account revenues towards capital projects implementation. Efforts at the mobilization of internally generated revenue and grants should be intensified with funds realized used along with funding drawn from the Local Governments as well as proceeds of debts raised towards the provision of the infrastructural needs of the state.

**Keywords:** State Government Revenue, Debt, Other Receipts, Capital Expenditure, Infrastructure, Bauchi State Nigeria.

### 1.0 Introduction

The primary purpose of government, outside the provision of security, is to ensure the welfare of the people. This can mainly be achieved through public expenditure on infrastructure which stimulates the growth process of the economy and depends largely on the precise form and size of expenditure allocated to economic and social development projects (Okolo, Edeme & Emmanuel, 2018). Government's investment in such infrastructure is usually represented by the level of capital expenditure it incurs and is dependent on the level of funding it is able to generate. A major complimentary role of State governments as the second tier of government in the Nigerian Federation remains that of the provision of the required infrastructure. Bauchi State, one of Nigeria's such 36 States with a National Bureau of Statistic's projected population of 6,537,313 (United Nation's Development Project - UNDP, 2018), is also one of 6 States within the North East Sub-region ravaged by the Boko-Haram insurgency which has prevailed since 2009. The conflict has significantly impacted on the provision of essential social services in education, health, and water/sanitation through the deliberate targeting and destruction of infrastructure, facilities and equipment. Damages to selected infrastructure and services including health and agriculture between 2011-2015 in Bauchi State is estimated at over US\$35.38 million with a corresponding state-level losses in Gross Domestic Product (GDP) estimated at over US\$86.3 million (UNDP, 2017). Recovery needs of such selected infrastructure and services were estimated at over US\$162.75 million.

Public revenues essentially provide the backbone for the administration of the three tiers of government within the Nigerian federation namely the Federal, State and Local Governments. These tiers of government mainly draw the bulk of their revenues from statutory allocations derived from a common pool of collectible revenues which had greatly been affected by fluctuations in global oil prices. The fall in oil prices over the years, with the most recent caused by the outbreak of the corona virus pandemic in late 2019, had led to a decline in distributable revenues.

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Efforts at the mobilization of internally generated revenues to complement the federal allocations have been inhibited by the ineffectiveness of the tax administration structures to sufficiently mobilize tax revenues from the informal sector as well as the impact of the Boko-Haram insurgency which had adversely affected the sources of livelihood of the citizens.

Other sources available to state governments include contributions received from the Joint Local Government Account for the execution of joint projects with the state and aids received from local and foreign sources. Though the aim of the establishment of the joint accounts by the Constitution was to ensure the receipt by local governments of their due statutory allocation from the federation account; a lacuna under the arrangement was the provision that the distribution should be done in such manner as may be prescribed by the state legislature. The states have, however, exploited such arrangement to make laws aimed at drawing funding to themselves for the execution of joint projects at the expense of the local governments. Similarly, grants and development assistance are received mainly to augment state efforts through support for specific projects and activities; humanitarian programmes; and technical assistance to improve skills (Ugochukwu & Okafor, 2016). Ironically, the ability of the state to mobilize such aid as well as private sector investments had also been affected by the adverse security conditions. Efforts by governments and international development agencies to address the adverse consequences of conflict in the region had recently led to the development of a coordinating framework through the establishment of the North East Development Commission and a full-fledged Ministry for Humanitarian Affairs and Disaster Management in 2019, in response to the humanitarian crises in the country, to coordinate efforts aimed at addressing the needs of affected citizens.

Deficits in funding arising from the enumerated challenges had, over time, necessitated the need for governments to incur debts in order to address their funding needs. Essien, Agboegbulem, Mba and Onumonu (2016) had noted that, historically, debts incurred by government in the country before 1978 were relatively small and mainly long-term from multilateral and official sources on very soft terms. Arising from the fall in oil prices and oil receipts, the country in 1977/78 raised its first jumbo loan of over US\$1.0 billion from the international capital market to finance medium to long term infrastructure projects. Domestic debts were also, subsequently, raised through the issuance of government instruments such as Treasury Bills, Treasury Certificates, Development Stocks and Treasury Bonds. In order to address inefficiencies associated with the debt management strategy; the Debt Management Office was established in 2000 to regulate government borrowings and achieve efficient debt management practices for all the tiers of government. Domestic debts, mostly in the form of short term bank credits and long term capital market bonds, thus provided the states a veritable source of funding for their infrastructure needs. Access into the Nigerian capital market, increasingly viewed as a viable source of long term finance for infrastructure and other social development initiatives (Oteh, 2011), was not however exploited by the states in the North-East sub-region except for the Yobe State Revenue Bond floated way back in 2002 and the Gombe State Bond of 2012. The Bauchi State Revenue Bond 2014 had, to date, been the only exploit made by the state in that respect.

Though budget on capital expenditure had generally been enormous over the years; the state of infrastructural facilities remains extremely poor with minimal improvements in roads; preponderance of ill-equipped educational and health institutions; high rate of unemployment and below average standard of living (Agunuwa and Nomuoja, 2016). Available data indicate that public expenditure had not contributed to infrastructure development due to low and inconsistent allocation with actual spending, in most cases, far below approved budgets (Okolo et al, 2018). The cost of governance given the first charge, mostly in the form of personnel costs and recurrent expenditure charged on accruable revenues, had left limited balances available for investment into social and other critical infrastructure. The utilization of such balances has been put to question as some of the projects to which these funding are applied; regrettably, do not reflect a priority for the people.

The study, therefore, seeks to assess the impact of the utilization of state government revenues through appropriate capital expenditure spending in the provision of needed infrastructure in Bauchi State for the period 2006 to 2018. It was also hypothesized, in the null form, that the various components of such revenue namely federation account allocation; internally generated revenue; debt; and other receipts do not have a significant impact on the infrastructure development of the state which the study will seek to test.

The study contributes to the infrastructural development literature by examining the potential influence of a range of revenue generation sources and strategies in Bauchi State. Another expected practical contribution of the study is that will provide a working guide to governments; legislators; and policy makers in public finance and related fields in order to make reasonable projections towards addressing the infrastructure deficits in their various states. It will also serve as a reference material for further study by scholars and researchers in public finance.

Section two of the remainder of the paper reviews relevant literature and theoretical framework relating to revenue generation and infrastructural development; Section three deals with associated methodological issues; Section four presents the data analysis and the discussions of the findings; while Section five provides the study's conclusion and recommendations.

## 2.0 Literature Review and Theoretical Framework

Conceptually, capital expenditure refers to that spending on physical assets that lasts over time for the provision of goods and services and government capital expenditure is money spent on investments goods which include hospitals, schools, roads, power, telecommunication etc (Nwanne, 2015). Though spending on maintenance of other assets such as vehicles and minor equipments are also classified as capital expenditure; majority of the expenditure relates to long-term physical assets generally referred to as infrastructure requiring much heavier volumes of funding.

Familoni (2006) categorizes infrastructure into two. Social infrastructure refers to those basic social amenities, critical to human existence and societal growth, which accommodate social services and are best served by government. Education and health are the two major classes of social infrastructure which respectively determine the quality of human capital stock and labour productivity and efficiency. Both have a positive effect on the economic development of a nation. Economic infrastructure whose provision increases the economy's productive capacity, on the other hand, include such public utilities as power, telecommunications, sanitation and sewage, piped gas supply and other public works such as roads, dams, public transport and railways systems, seaports and waterways and airports. These are mostly handled by the central government. In view of the enormity of demand, public and private capital funding is jointly or separately employed for the provision of both social and economic infrastructure with the government defining the operating framework. State governments are, thus, saddled with the responsibility of the provision of some of these social and economic infrastructures with their efforts in that regard measured by the amount of revenues they deploy in the form of capital expenditure.

Public revenue generally refers to the various sources through which government generate funds to finance its activities (Adams, 2006). A distinction is however made between public revenue and public receipts. While public receipts include all sources of income to government; public revenue is limited to exclude debts, aids and grants; and sales of government assets. State government revenues will however, in the context of this study, refer to all income received by the states including statutory allocations from the federation account; internally generated revenues collected; other receipts received as contributions from local governments as well as as grants; and debt raised towards the execution of their programmes.

As provided for by the Nigerian Constitution (1999), State Governments are entitled to monthly revenue allocations from a defined pool of revenues collected on behalf of the three tiers of government. Section 162 (1) specifically provides that "the Federation shall maintain a special account to be called the Federation Account into which shall be paid all revenues collected by the Government of the Federation...". Such statutory revenues are derived mainly from crude oil sales; petroleum profit tax; royalties; mining fees; company income taxes and custom and excise duties. Gains made on actual prices of crude oil over the yearly budget benchmarks are similarly collected centrally into a specially created Excess Crude Account (ECA) with such savings shared only at the discretion of the President. The value added tax (VAT) is a consumption tax levied on certain goods and services which is also centrally collected. These categories of revenues are distributed to all tiers of government under a defined sharing arrangement known as revenue allocation formula and indices provided by the Revenue Mobilization Allocation and Fiscal Commission (RMAFC), a body constitutionally charged with that responsibility. The process leading to the determination of the revenue allocation has been a long historical issue. For statutory revenues collected into the Federation Account; the current formula shares revenues under the vertical distribution to the federal; states' and local governments in the ratio 52.68%; 26.72% and 20.60% while further distribution under the horizontal arrangement is made taking into consideration equality at 40%; population at 30%; land mass and terrain at 10%; social development at 10%; and internal revenue generation effort at 10% (Daniel, 2019). Value Added Tax is distributed at the rate of 15%; 50% and 35% (Omolehinwa & Naiyeju, 2011).

Internally Generated Revenue (IGR), which refers to those revenues whose collection and management has constitutionally been entrusted as the responsibility of states, provides them with an additional source of income. These comprise of taxes including personal income tax and capital gain tax; licenses, fees and fines which include motor vehicles and drivers' licenses, land registration and survey fees, business registration among others as well as earnings from other economic activities such as dividends from investments, rent on government properties etc (Adesoji & Ogechi, 2013). Collection is determined by the efforts and strategies employed by the states.

The need for state governments to generate adequate revenue from internal sources to complement declining statutory allocations therefore became paramount. This need underscores their eagerness to adopt strategies aimed at tapping new sources of revenue and becoming innovative in the collection of revenue from existing sources. Shortfall in revenue thus implies deficits in the financing of budgets which may then be addressed by debts.

Public debt refers to funding generated to address accumulated deficits resulting from excess of government expenditure over revenue (Adedokun, 2014). It is the government's total monetary obligations to local and foreign citizens and can be classified into domestic and external debt. While the external debt of states is guaranteed by the federal government; domestic borrowings require analysis and confirmation, based on clearly defined criteria and guidelines that the states' ability to repay from their revenues is not in doubt (Essien et al, 2016). The domestic component comprises of treasury bills; treasury certificates; borrowings, mostly in the form of short term bank loans; and long term capital market bonds. The external components include bilateral and multilateral debts; and promissory notes mostly from the World Bank; International Monetary Fund (IMF); other international finance organizations; and foreign countries. It should be noted that, in line with the provisions of the Fiscal Responsibility Act 2007, proceeds of borrowing can only be used for long term capital expenditure and human capital development and must have been so authorized in the Appropriation Act. Though there are criticisms in respect of debt obligations in view of the costs of service; they have provided a veritable source of finance which states have leveraged on in funding their infrastructure needs.

Other receipts, in the context of this study, refers to the contribution of the local governments to states meant to finance meaningful projects under a joint arrangement as well as grants and development assistance from local and foreign sources. As provided for by Section 162 [6] of the Constitution of Nigeria, the State Joint Local Government Account is a special account maintained by each state government "into which shall be paid allocations to the local government councils of the state from the Federation Account and from the Government of the State" which shall be distributed in a manner prescribed by the state legislature. State governments have instead used the mechanism of the joint Account to draw funding to themselves through various forms of deductions and diversions of funds intended for the local governments (Okafor, 2010). Grants and development assistance, on the other hand, are funding obtained by states at concessionary financial terms in form of local development mostly conditional to promote the development of specific sectors such as education and healthcare and foreign aid aimed at transferring resources from developed to developing nations for development and poverty reduction (Amassoma, 2014). These include support for specific projects and activities; humanitarian programmes; food donation and through technical assistance to improve skills (Ugochukwu & Okafor, 2016). It is, however, believed that the consequences of aids have most times exceeded the benefits as government efforts at revenue generation become relaxed (Uzonwane & Ezenekwe, 2015). Empirically, a research was conducted by Dang, Bako and Lalu (2016) to examine the impact made by revenue generation and its utilization on social service delivery in Plateau State, Nigeria for the period 2006 to 2015. Ordinary least square regression analysis was used to test the impact of internally generated revenue; federation account allocation; capital receipts and other receipts on recurrent and capital expenditure on social services. The result indicated that only the internally generated component was found to have made a positive significant contribution. A similar study conducted by Akujobi and Kalu (2009) on the impact of state governments' finances and investment on real assets development in Nigeria for the period 1984 to 2008 however revealed to the contrary that federation account allocation and stabilization fund had positive significant relationship with real assets financing while internally generated revenue; loans; grants and value added tax were found insignificant. The studies recommended that government's efforts at revenue generation and the attraction of external finance and grants from international development organizations should be intensified with more focus given to utilization on capital expenditure in education and health services.

Additionally, Edogbanya and Ja'afaru (2013) in a study conducted on revenue generation and its impact on government's development effort in selected local governments in Kogi State for the period 2006 to 2010; concluded that there is a positive significant relationship between the various components of federal allocation and the internally generated revenue on efforts at physical development. A related research using ordinary least square regression conducted to determine the possible causes of poor performance of local government areas in Cross Rivers State in the creation of social assets by Akabom-Ita (2013) for the period 1997 to 2011 revealed that all the variables used exerted positive influence on the creation of social assets. Though the relationship with federal allocations and grants were significant; that with statutory allocations and internally generated were however insignificant. The studies recommended that the governments should strengthen their revenue generation capacities and direct the collection efforts into meaningful development projects.

An ex-post facto research conducted by Mbah and Onuarah (2018) also sought to find out the effect of internally generated revenue on the Infrastructural development of the five South Eastern States of Nigeria using descriptive statistics, correlation and linear multiple regression for data analysis and data interpretation. The results revealed a significant relationship between internally generated revenue and the cost of infrastructure. In a similar research conducted by Nnnaseh and Akpan (2013); the impact of internally generated revenue on the development of water; electricity and road infrastructure in Akwa Ibom State was examined for the period 2000 to 2012. The results of the study revealed that internally generated revenue impacts positively and significantly in the provision of such infrastructure. Ajiteru, Adaranijo and Bakare (2018), in a similar study conducted on the effect of tax revenue on infrastructural development in Osun State, however cautioned that in a situation where there is lack of accountability and commitment in the government leading to a lack of trust by the citizens; taxes will not adequately be paid by the citizens thereby leading to dependence on only statutory allocation from the federation account. The consequence of such will manifest in low level of infrastructure investment. The studies thus recommended that efforts should be intensified to generate more internal revenue which should equitably be allocated to various sectors of infrastructure need.

A related research was also conducted by Ifeany and Ernest (2016) to examine the impact of public debt on infrastructural development by the federal government of Nigeria. Time series data generated from the Central Bank of Nigeria for the period 1986 to 2015 was used with capital expenditure as proxy for infrastructural development. Ordinary least squares regression was empirical used to test the impact of total; external and domestic debts on capital expenditure. The results revealed that total debt influences infrastructure development significantly. Though the relationship between domestic debt and infrastructure development was significant, conversely that with external debt was found insignificant. The study recommended that borrowing should be discouraged unless it becomes inevitable and that government should exhaust its internal sources of borrowing before resorting to external sources with the proceeds directed to specific projects. The study however focused on the debts of the central government as against that of states even though they operate within the same regulatory framework.

A study on the effect of foreign aid on the growth of the Nigerian economy by Ugochukwu and Okafor (2016) used time series data for the period 1980 to 2013. Ordinary least squares regression was used to analyse the effect of the independent variables to growth domestic product. The result revealed that foreign aid in form of grants and assistance had a positive but significant relationship with GDP. The study recommended that government should put in place sound policies that will encourage the attraction of grants to aid in the development process.

Theoretically, this study adopts the fiscal federation theory as the basis of discussion of this work. Discussions centered on revenues of a state government and its utilization in the provision of public goods is situated within the framework of the theory and practice of fiscal federalism. The foundations of this theory were laid by Arrow's conclusions (1970) on the roles of the private and the public sector and Musgrave's discourse (1959) on public finance. Samuelson's important papers (1954, 1955) on the theory of public goods provided the framework for what has come to be accepted as the proper role of the state in the economy.

The framework identifies three roles for the public sector. These are to correct various dimensions of market failure; maintain macroeconomic stabilization and redress income inequality. The area of interest to this study is that of correcting market failures. The government is expected to step in where market mechanism fails due the characteristics of various public goods. In the economics sense; public goods will be underprovided if left to the market dynamics as the private provider would minimally invest in their provision if benefits accruable to him are far lower than the total benefit to society. Government and its officials, seen as custodians of public interest would seek to maximize social welfare provision based on either their benevolence or the need to ensure successes in democratic elections.

The theoretical framework is basically a Keynesian one which canvasses for an activist role of the state in economic affairs. Once a tiered level of government is put in place; the state's role in maximizing social welfare provides the basic ingredient for the application of the theory of fiscal federalism. Each tier of government is then seen as seeking to maximize the social welfare of citizens within its jurisdiction. This multi-layered quest becomes very important where public goods exist as the consumption may not be national in character but localized. In such circumstances; local outputs targeted at local demands by local jurisdictions clearly provide higher social welfare than central provision.

### 3.0 Research Methodology

To examine the impact of state government revenue on infrastructure development represented by capital expenditure incurred; the study is based on experimental research design using descriptive and empirical research strategies. The data used in this research is secondary in nature and the actual monetary values of the variables of this study were extracted from the Annual Financial Statements of the Bauchi State Government for the period 2006 to 2018. Ordinary Least Square (OLS) Regression analysis, an econometric test, was used to deduce whether estimates of the parameters of the economic relationships from the observations are theoretically meaningful and statistically satisfactory.

The specification of the model adopted for the investigation is more aptly represented as follows:

$$\text{CAPEX} = \beta_0 + \beta_1 \text{FEDALL} + \beta_2 \text{IGR} + \beta_3 \text{DEBT} + \beta_4 \text{OTHERS} + \mu$$

Where

CAPEX = Capital Expenditure Incurred as proxy for Infrastructure Development

$\beta_0$  = Intercept of the function

$\beta_1 - \beta_3$  = Regression coefficients

FEDALL = Federation Account Allocation

IGR = Internally Generated Revenue

DEBT = Debts

OTHERS = Other Receipts which comprise of Grants and Assistance received as well as Local Governments' contribution towards the execution of joint projects

$\mu$  = Error Term

The method of evaluation consists of deducing whether the estimates of the parameters are theoretically meaningful and statistically satisfactory. In evaluating the results of the regression, first order statistical test are employed. This is intended at evaluating the statistical reliability of the estimated parameters and includes  $R^2$ ; t-test; and P-value. The second order test was used to measure the degree of relationship between linearly related variables and thus detect the presence of multicollinearity. This occurs when the correlation between two different variables is very strong and the impact of the variation is not explained. The test adopted in this research to check for the normality of the distribution of the data was the skewness and kurtosis test (sktest). This test confirms whether the data follows a normal distribution.

For the post-estimation, the Variance Inflation Factor (VIF) test was used to quantify the severity of multicollinearity which may exist between two different variables in an ordinary least square regression analysis. The Breusch-Godfrey LM test for the normality of the residual is used to check for autocorrelation which may exist when one or more of the variables strongly correlate with the error term which explains the effects of un-used variables in an ordinary least square regression or serial autocorrelation which explains a very strong correlation among two or more of the unused variables. Furthermore, Breusch-Pagan test was used to assess for heteroskedasticity which occurs where the variability of a variable is unequal across the range of values of other variables that predict it.

### 4.0 Data Presentation and Analysis

This section presents the data used in the study; the results of the analysis of such data; and its interpretation.

Table 4.1 below presents the details of the total capital expenditure incurred as well as the various components of revenue collected by the Bauchi State Government within the period covered by the study.

**Table 4.1: Breakdown of Capital Expenditure incurred and Revenue Collected**

YEAR	CAPITAL EXPENDITURE (CAPEX)	FEDERAL ALLOCATIONS (FEDALL)	INTERNALLY GENERATED REVENUE (IGR)	DEBT	OTHER RECEIPTS
	N	N	N	N	N
2006	17,799,533,945	29,496,326,309	1,400,275,434	9,254,505,655	4,101,707,876
2007	19,941,857,319	47,154,690,234	1,141,287,475	2,775,978,204	2,922,023,493
2008	34,879,433,196	47,703,589,548	2,310,458,325	11,000,000,000	14,500,557,192
2009	14,610,913,592	38,239,286,852	2,127,178,357	1,432,911,456	10,092,425,676
2010	14,081,983,413	40,724,582,425	3,340,310,397	2,008,535,568	5,020,583,122
2011	21,311,572,191	61,618,114,811	4,417,056,755	13,566,876,034	4,242,483,231
2012	16,671,618,431	60,463,207,504	4,061,831,419	5,257,516,203	8175,729,158
2013	12,456,362,482	66,952,209,671	4,936,701,215	3,100,025,942	10,951,704,843
2014	16,678,313,427	64,610,160,816	4,853,453,185	12,423,208,949	6,970,637,837
2015	9,083,093,600	48,620,188,378	6,283,433,497	17,921,835,701	2,363,741,700
2016	15,854,087,858	52,456,272,433	5,157,855,219	17,630,694,525	8,989,729,920
2017	22,464,131,869	64,118,040,751	5,472,148,744	13,144,995,331	1,748,995,000
2018	22,624,808,252	86,741,200,803	6,525,458,165	18,360,708,902	2,474,379,088
<b>TOTAL</b>	<b>238,457,709,575</b>	<b>708,897,870,535</b>	<b>46,869,592,968</b>	<b>127,877,792,470</b>	<b>82,254,698,136</b>

Source: Annual Financial Statements of Bauchi State Government

For the descriptive statistics presented in table 4.2, the mean of capital expenditure; federation account allocation; IGR; and DEBT all fall between N4.00 billion and N54.5 billion falling within a minimum of N1.14 billion and a maximum of N86.74 billion. Among the explanatory variables, federation account allocation (FEDALL) has the highest level of contribution towards capital expenditure while IGR has the lowest. The low standard deviation in comparison to the mean values for all the variables indicate that the data is fairly dispersed and around the mean. The skewness value for all the variables falling between 0 and 1 and the kurtosis values falling below 3 is an indication that the data is approximately symmetrical and normally distributed.

**Table 4.2: Descriptive Statistics**

Variable	Mean	Std. dev.	Min	Max	Skewness	Kurtosis
CAPEX	N18.3 billion	N6.36 billion	N9.08 billion	N34.88 billion	0.0313	0.0392
FEDALL	N54.5 billion	N15.0 billion	N29.49 billion	N86.74 billion	0.4805	0.5131
IGR	N4.00 billion	N1.79 billion	N1.14 billion	N6.53 billion	0.5900	0.2577
DEBT	N9.84 billion	N6.33 billion	N1.43 billion	N18.36 billion	0.9476	0.0575
OTHERS	N6.35 billion	N3.95 billion	N1.75 billion	N14.50 billion	0.2479	0.8579

Source: Researcher computation from Stata version 11

Table 4.3 shows the results of the correlation analysis, an econometric test used to check the strength and direction of the relationship between the variables and also to check for the presence of multicollinearity. The table shows that allocation from the federation account (FEDALL); debt (DEBT) and other receipts (OTHERS) relate positively but in a weak manner respectively with capital expenditure (CAPEX) while internally generated revenue (IGR) exhibit a weak but negative relationship respectively with capital expenditure. The levels of relationship were at 14.62%; -25.03%; 17.19%; and 26.40% between FEDALL; IGR; DEBT and OTHERS respectively and the capital expenditure (CAPEX) incurred by the Bauchi State government. Among the independent variables; there is a strong positive relationship between internally generated revenue (IGR) and federation account allocation (FEDALL) at 74.56% and between IGR and DEBT at 67.34% which raises the concern for the presence of multicollinearity. The relationship of DEBT with FEDALL at 42.88% was positive and moderate while that between other receipts (OTHERS) with FEDALL, IGR and DEBT were weak and negative at -15.24%; 26.79% and 30.53% respectively.

**Table 4.3: Correlation Analysis**

Variables	CAPEX	FEDALL	IGR	DEBT	OTHERS
<b>CAPEX</b>	1.0000				
<b>FEDALL</b>	0.1462	1.0000			
<b>IGR</b>	-0.2503	0.7456*	1.0000		
<b>DEBT</b>	0.1719	0.4288	0.6734*	1.0000	
<b>OTHERS</b>	0.2640	-0.1524	-0.2679	-0.3053	1.0000

Source: Researcher computation from Stata version 11

From the ordinary least square (OLS) regression analysis results presented in table 4.4 below, the R- Square of 0.6731 indicates that over 67% variation in the capital expenditure can be explained by allocations from federation account; internally generated revenue; debt and other receipts. The F – Statistic of 4.12 with a probability of 0.0422 is an indication of the fitness of the model to explain the influence of the independent variables on the dependent variable at 5% level of significance.

**Table 4.4: Ordinary Least Squares results**

	F-statistic	4.12		
	Prob (F–statistic)	0.0422		
	R–squared	0.6731		
	Adjusted R-squared	0.5097		
<b>Dependent Variable: CAPEX</b>				
Explanatory Variable	Coefficient	Standard Error	t - statistic	P - value
FEDALL	0.3613481	0.1302596	2.77	0.024
IGR	-4.784107	1.334372	-3.59	0.007
DEBT	0.804074	0.2817525	2.85	0.021
OTHERS	0.4444691	0.343146	1.30	0.231

Source: Researcher computation from Stata version 11

The mean variance inflation factor (VIF) of 2.20 highlighted in table 4.5 below falling between the acceptable ranges of 1 to 10 indicates the absence of multicollinearity.

**Table 5: Variance Inflation Factor (VIF) results**

Explanatory variable	VIF	1/VIF
FEDALL	2.31	0.433290
IGR	3.47	0.288061
DEBTS	1.92	0.519594
OTHERS	1.11	0.897511
MEAN VIF	2.20	

Source: Researcher computation from Stata version 11

The result of the Breusch-Godfrey Lagrange multiplier test in table 4.6 shows a p-value of 0.3649 which confirms the absence of autocorrelation.

**Table 4.6: Breusch-Godfrey LM Test for Autocorrelation**

lags	Chi2	df	Prob > chi2
1	0.821	1	0.3649

Source: Researcher computation from Stata version 11

The Breusch-Pagan test for heteroskedasticity result presented in table 4.7 with a p-value of 0.6825 which is in excess of 0.05 indicates that null hypothesis on homoskedasticity is supported and thus the absence of heteroskedasticity is assumed.

**Table 4.7: Breusch-Pagan/Cook-Weisberg Test for Heteroskedasticity**

H0: Constant variance	chi2(1)	Prob > chi2
Fitted values of capex	0.17	0.6825

Source: Researcher computation from Stata version 11



Overall, the findings from the study showed a positive relationship between allocations received from the federation account and capital expenditure with a p-value of 0.024 which represents the state's commitment towards the development of infrastructure. The null hypothesis is hence rejected. This is in line with the findings of Akujobi and Kalu (2009), Edogbanya and Ja'afaru (2013) and Akabom-Ita (2013). A N1 increase in federation account allocation thus leads to an increase of N0.361 in capital expenditure. The explanation for this scenario is that though a high level of revenue is received from the federation account; allocation of such revenue to capital expenditure is minimal and insufficient to promote infrastructure development.

Internally generated revenue was noted to exert a negative but significant relationship with a p-value of 0.007 with capital expenditure and supports the findings of Edogbanya and Ja'afaru (2013), Nnnaseh and Akpan (2013), Akabom-Ita (2013), Dang, Bako and Lalu (2016) and Mbah and Onuarah (2018) but however contradicts the findings in the work of Akujobi and Kalu (2009). The null hypothesis in this regarded is thus rejected. The finding means that a N1 increase in IGR leads to a decrease of N4.784 in capital expenditure. The implication of this finding is that though internally generated revenue has the potential to significantly influence infrastructural development; such tendency is being hindered by huge costs associated with the collection. Heavy collections are normally neutralized by the costs of operation.

The result of the study further showed that debt has a positive significant relationship with capital expenditure with a p-value of 0.021 and thus rejects the null hypothesis. This is in line with the findings of Ifeany and Ernest (2016) but contrary to the findings of Akujobi and Kalu (2009). A N1 increase in debt will lead to an increase in capital expenditure of N0.804. While this implies the importance of the use of borrowings in the development of infrastructure, the state's efforts are not commensurate to its needs in that regard.

Other receipts however have a positive but insignificant relationship at a p-value of 0.231 with capital expenditure which fails to reject the a priori null expectation. This is in line with the findings of Akujobi and Kalu (2009); Dang, Bako and Lalu (2016) and Ugochukwu and Okafor (2016). The finding indicates that a N1 increase generated from other receipts will lead to an increase in capital expenditure by N0.444. The implication of the finding is that, though grants and assistance are reliable sources of improving infrastructure development, sufficient efforts do not appear to have been made to derive the benefits which was also been affected by the effect of the insurgency which had hindered the activities of internal development partners and donor agencies. Furthermore, funding drawn from the local governments by the state through the operation of the joint account as contribution for the execution of joint projects is not mostly applied towards the creation of infrastructure.

## 5.0 Conclusion and recommendations

The study had sought to ascertain the impact made by public revenue and capital receipts in the development of infrastructure through allocations to finance capital expenditure in Bauchi state. This is desirable in view of the impact of infrastructure in growth and development and its ability to improve the lives and well being of the citizens.

From the results and the interpretation therein; the study recommends that policy should be designed to ensure that a fair proportion of revenue received from federation account is allocated to the funding of capital expenditure. Efforts should also be intensified in the efficient generation of internal revenues in order to increase its size and reduce associated costs of collection. Furthermore, efforts at the attraction of aids through grants and technical assistance should be intensified in view of its contributions while debts particularly of a long term, domestic nature should be negotiated proportionate to the state's revenue generation capacity to fund meaningful projects that will impact on the lives of the citizenry.

## References

- Adams, R.A. (2006). *Public Sector Accounting and Finance*. Corporate Publishers Ventures.
- Adedokun, A. (2014). Budget deficit and public debt management in developing countries. *Journal of Management Science and Engineering*, 8(2), 38–41.
- Agunuwa, V. E., & Nomuoja, J. O. (2009). The impact of capital expenditure in the Nigeria public sector on economic growth. *The Intuition -Department of Banking and Finance, Delta State polytechnic*, 1–9.
- Ajiteru, W.O., Adaraniyo, L.O. & Bakare, L.A. (2018). Tax revenue and infrastructural development in Osun State. *International Journal of Innovative Finance and Economics Research*, 6(2), 50-61.

- Akabom -Ita Asuquo. (2013). Revenue base and social assets creation in Local Government Areas in Cross River State – Nigeria: A virile tool for overcoming exclusion and strengthening inclusion for sustainable development in the third world. *Journal Of Humanities And Social Science (IOSR-JHSS)*, 7(3), 59–66.
- Akujuobi, L. E., & Kalu, I. U. (2009). State government finances and real asset investments: the Nigerian experience. *African Journal of Accounting, Economics, Finance & Banking Research*, 4(4), 1–11.
- Amakom, S., & Amassoma, D. (2014). The Linkage between foreign aid and economic growth in Nigeria by. *International Journal of Economic Practices and Theories*, 4(6), 1007-1017.
- Dang, D. Y., & Bako, E. (2015). Impact of revenue generation and utilization on social service delivery in Plateau State: 2006-2015, *Tax Academy Research Journal*, 1(1), 29–48.
- Daniel, G.I. (2019). *Public sector accounting and administrative practices in Nigeria*. Safari Books Ltd, Shell Close, Ile Ori Detu-Onireke, Ibadan, Nigeria.
- Edogbanya, B., Sule, J. G., & Sule, G. (2013). Revenue generation : It's impact on government developmental effort ( A study of selected local council in Kogi East Senatorial District ). *Global Busines and Management Research Administration and Management*, 13(4), 12–26.
- Essien, S. N., Agboegbulem, N. T. I., Mba, M. K. & Onumonu O.G. (2016). An empirical analysis of the macroeconomic impact of public debt in Nigeria. *CBN journal of applied Statistics*, 7(1), 125–145.
- Fasoranti, M. M. (2012). The effect of government expenditure on infrastructure on the growth of the Nigerian economy. *International Journal of Economics and Financial Issues*, 2(4), 513–518.
- Ifeany, A. L., & Ernest, C. (2016). Effects of government's borrowing on Nigerian infrastructural development. *Euro-Asia Journal of Economics and Finance*, 4(4), 93–112.
- Mbah, A.N. & Onuorah, J.K.J. (2018). Effect of internally generated revenue on infrastructural development of South East States of Nigeria. *International Journal of Economics and Business Management*, 4(7), 1-10.
- Nnansch, M., & Akpan, S. S. (2013). Internally generated revenue ( IGR ) and infrastructural development in Akwa Ibom State. *European Journal of Business and Management*, 5(31), 164–173.
- Nwanne, T. F. (2015). Implications of government capital expenditure on the manufacturing sector in Nigeria. *European journal of Accounting, Auditing and Finance Research*, 3(10), 19-33.
- Okafor, J. (2010). Local government financial autonomy in Nigeria: The state joint local government account. *Commonwealth Journal of Local Governance Issue* 6, 127 – 131.
- Okolo,C.V., Edeme, R.K. & Emmanuel, C. (2018). Economic analysis of capital expenditure and infrastructural development in Nigeria. *Journal of Infrastructure Development*, 10(1–2), 52–62.
- Omolehinwa, Eddy O. & Naiyeju, J.K.( 2011). *Theory and practice of government accounting in Nigeria*. Pumark Nigeria Limited (Educational Publishers).
- Oteh, A. (2010). Capital market as a long term option for financing infrastructure development. *Central Bank of Nigeria Infrastructure Finance Conference*.
- Ugochukwu, S., & Okafor, I. G. (2016). Effect of external borrowing and foreign aid on economic growth in Nigeria. *International Journal of Academic Research in Business and Social Sciences*, 6(4), 155 - 175.
- United Nations Development Programme –UNDP, (2017). Accelerating development investments in famine response and prevention - case study of North-East Nigeria. *Business case assessment report*.
- United Nations Development Programme – UNDP, (2018). Achieving human development in North East Nigeria. *National Human Development Report 2018*.
- Uzonwanne, M. C., & Uju, E. R. (2015). Impact of foreign aid on capital generation in Nigeria. *International Journal of Economics, Commerce and Management*, III(9), 876–889.